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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,001	06/20/2003	Joel Demarest	6264.003/DIV I/CDQ	6039

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EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
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3722

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/600,001

Applicant(s)

DEMAREST ET AL.

Examiner

Erica E Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references (such as the *Carburization, Metal Dusting and Carbon Deposition* article mentioned on page 4) have been cited by the examiner on form PTO-892, they have not been considered.

### ***Specification***

2. The disclosure is objected to because of the following informalities: it appears that the status of the parent application referenced in the first sentence of the application needs to be updated to reflect its patented status (i.e., it appears that language such as --now US. Pat. No. 6,644,358-- should be added at the end of the first sentence of the specification that was added by amendment in the preliminary amendment filed June 20, 2003).

Appropriate correction is required.

### ***Claim Objections***

3. Claim 8 is objected to because of the following informalities: in claim 8, line 6, it appears that "at" should be --a--; in claim 8, lines 14-15, it appears that language such as --cutting inserts having-- should be inserted after "cutting tools having", or alternatively that "the cutting inserts in line 15 should be changed to --the cutting tools-- so that an apples-to-apples comparison is being made. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 3,088,494 to Koch et al. in view of EP 980729 ('729) and U.S. Pat. No. 4,411,569 to Pizzola.

Koch et al. teaches a tube used with a steam boiler or furnace application (see col. 1, lines 20-64 and especially lines 20 and 52). Koch teaches that the tube has a plurality of parallel continuous helical grooves (see Figure 2 and col. 3, lines 28-32, for example, as well as col. 5, lines 4-21 for the benefits thereof).

While Koch does teach that the tube is made from "suitable carbon or alloy steel" of "circular cross section" (col. 3, lines 18-20), Koch is silent as to how the tube is made (and thus does not explicitly teach that the tube is "centrifugally-cast"), and additionally, Koch is silent as to how the helical grooves are produced (and thus does not explicitly teach that they are produced with the cutting set forth in claims 8-10 and 12, nor that they are produced by "mechanically deforming the interior surface" as set forth in claim 11).

'729 teaches tubing having internal grooves, which tubing is used in furnaces (see page 2, paragraphs 0001, 0005 and Figure 3a, for example). It is noted that '729 explicitly teaches creep resistant alloys are desirable to use for such tubes because of the high temperatures to which the tubes are exposed (page 3, paragraphs 0021-0022), that for carbon steel based creep resistant alloys which are used for making such tubes, "casting is essentially the only manufacturing

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method which can be used to produce the required tubes" (page 3, paragraph 0015), and that "centrifugal casting" is preferred (see paragraphs 0023-24, for example).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the specific centrifugally cast carbon steel based creep-resistant alloy taught by '729 for the generic "carbon or alloy steel" taught by Koch for the purpose of providing a material that is particularly suited (as taught by '729) to use in the high-temperature environment taught by Koch for the purpose of resisting creep, for example, as taught by '729 and described above.

Regarding the formation of the helical grooves, note that Pizzola teaches a method and apparatus for forming helical grooves within the bore of a metal (see col. 6, lines 1-3) tube 11 (see Figure 1), wherein a plurality of cutting tools 18, each having a plurality of cutting inserts 20 mounted thereon (see Figures 1-2) are utilized to form the helical grooves 12 (see Figures 1-2 and col. 2, line 67 through col. 3, line 15, for example). Note also that consecutive adjacent cutter assemblies 14 define cutters 20 that extend incrementally radially further outward, in keeping with the definition of a broaching operation (see col. 5, lines 30-47).

Specifically re claim 10, Pizzola is silent as to the specific quantified amount of dimensional increase, but does explicitly teach that "[t]he exact increment of increased diameter defined by the incrementally larger cutters 20 may vary in accordance with parameters known in the broaching art, to provide a smooth transition from one cutting assembly to the next, to reduce or minimize the power expenditure necessary to deepen the rifling groove" (col. 5, lines 40-47).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced the helical grooves taught by Koch et al. via the

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broaching device/operation taught by Pizzola for the purpose of providing a method that reduces time an energy by enabling the grooves to be performed in one pass of the overall cutting device (see Pizzola, col. 1, lines 29-39, col. 2, lines 10-13, and col. 5, lines 65-68, for example).

Specifically regarding claim 10, particularly in light of the teaching by Pizzola that the incremental amount of dimensional increase can be varied as desired, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the amount of dimensional increase whatever value or within whatever range of values was desired or expedient to the end user, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

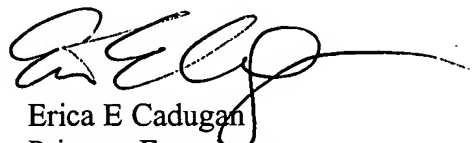
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadogan  
Primary Examiner  
Art Unit 3722

eec  
April 14, 2005